THE FOSSIL COLLECTOR

BULLETIN Nº 12 JANUARY 1984

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EDITORIAL

A word of warning to those of you who buy overseas fossils from time to time, particularly those which are shallow impressions in fine grained material with little or no original colour differentiation between fossil impression and matrix.

I have recently had a close look at a specimen of Libellula doris, a Miocene insect from Victtoria de Alba, Italy. Under a microscope or even through a 10x hand lens you may find that the insect you see on display has been painted on. Although there is an insect on the matrix the attempt to stain it to make it easily visible to the naked eye is extremely poor and fails to follow the true outline of the fossil, making the specimen virtually worthless particularly as the paint used cannot be removed.

A few years ago I found similar "touching up" had been done to specimens of Knightia eocaena from the Bridger Formation of La Barge, Wyoming. This time the outline had been painted to make the fish more saleable.

While repair and staining of fossils to accentuate detail is I believe acceptable, if properly done, this information should be stated on the accompanying card description. The specimens mentioned above, however, were virtually ruined by the attempt to improve the "displayability" of the fossil for monetary gain. Unfortunately, it is not easy to detect the problem without very close examination.

With this Bulletin is a Subscription Renewal form for 1984. Would you please complete the form and return it to the Secretary together with your subscription before 30th April 1984. This will ensure you receive the May issue and that your name, address and interests are included in the updated Membership List. The subscription for the coming financial year remains at $5.00 inspite of the recent increase in postage rates.

Bulletin No.13 (May 1984) which will contain the second part of the illustrated article on Bivalves, may be a little late in publication because of the late Easter holiday season, so don't panic if you don't get your copy before mid June.

ARTICLES AND SNIPPETS NEEDED ALL THE TIME -
IT TAKES A LOT OF MATERIAL TO FILL 24 PAGES PLUS

Frank Holmes

GEMBOREE 1984 - APRIL 20TH / 23RD AT MT.ISA

A venue has been arranged at the Gemboree for the Association's Annual Meeting. Unfortunately we left our request to the Gemboree Committee a little late and consequently the length of time available for the meeting is short. Please note that the meeting will be held in the Gun Club rooms on Friday 20th. April at 5.30 p.m. As another meeting follows at 7 p.m., we may have to adjourn to an outside locality if we want to continue our get together.

Incidentally Lindsay & Marcella Berry have written to say that they would be pleased to see any members travelling to or from Mt. Isa via Toowoomba, as they are unable to go to the Gemboree themselves. If any of you would like to call in and see their collection they would be pleased to hear from you beforehand. Their address is M/S 223 Nobby, via Toowoomba, Queensland 4360. Phone (076) 963220.

Ian Sobbe from nearby Clifton has also written to let us know that on his way to Mt. Isa, Kevin Davey of Willyama Minerals will be spending Saturday 14th April,1984 at the clubrooms of the Darling Downs Lithophilic Society, 4 William Street, Toowoomba.

As well as minerals, Kevin will have overseas fossils for sale at the above address between 10 a.m. and 6 p.m.

CATALOGUE YOUR FOSSILS BY CARD INDEX

In Bulletin No.11 (Pages 6 & 7), we asked whether anyone was interested in purchasing printed index cards for cataloguing their fossil collection. To date we have only received tentative orders for about 3,500. To make the proposition worth while we need to purchase about 10,000 with say 70% pre-ordered to justify the initial outlay of Association funds.

Anyone wishing to make an order for these 125mm x 75mm (5" x 3") cards, as previously illustrated, please advise the Secretary. Cost will be between $4.00 and $4.50 per 100 including postage.

Alternatively, we would be prepared to consider having fossil specimen cards printed of similar design to the front of the index cards, but about 70mm x 40mm. These could be placed with specimens, however, they should not be considered as a substitute for a numbering system and a proper catalogue.

FINANCES

Because of the change to the end of the financial year from 31st December, 1983 to 29th February, 1984, we have only included an overall statement of Income and Expenditure for the period 1st January 1983 to 17th January 1984

A full statement for the 14 month period will be included in Bulletin No.13.

Carried forward from 1982	$ 478.93
Income including sale of car stickers	1042.80
	$1521.73
Less Expenditure	775.90
Balance 17. 1. 1984	$ 745.83 *

* Includes eight 1984 subscriptions

IN THE NEWS

OPALIZED BONES FOUND AT ANDAMOOKA

At the end of October 1983 under the headings as "Miners Meet a Monster" and "Dino Diggers Strike History", the national press reported the find by two opal miners of fossilized bones from a 100 million year old marine dinosaur.

The bones were discovered by Stefin Bilka and John St.Alban in their open cut mine about 3 km north of Andamooka in South Australia.

At the time of the initial report, excavation had uncovered a 10 cm diameter leg bone broken into many pieces, and about 20 sections of vertebrae. The animal appears to have been about 7 metres long, however, until excavations have been completed and the material removed for study at the Museum of South Australia, exact details will not be known.

Dr. Thomas Rich, Curator of Vertebrate Palaeontology at the Museum of Victoria advised that a tibia from a theropod dinosaur Kakura kujani was found in the Andamooka area in 1980. It was a small carnivorous dinosaur that lived in a marine environment.

PRE-HISTORY IN A QUARRY

The Melbourne Sun recently carried a report of the discovery of fossil marsupial remains at the Australian Portland Cement Co's Quarry at Fryansford, Geelong.

Dr. John Webb from the University of Melbourne found a tooth from the upper level of the quarry during a geological class and mailed it to Dr. Rich from the Museum of Victoria.

Further searching has uncovered other vertebrate fossils including the remains of three species of kangaroo, two of which are extinct and a prehistoric wombat.

Dr. Rich said the locality was more important than the fossils themselves and could become a "text book" for studies of Australian conditions millions of years ago. The structure and type of strata above and below the fossil bed have enabled it to be fairly accurately dated at 2 to 3 million years old.

Editor's Note: On Melbourne Cup Day four Association members assisted Dr. Rich in collecting material for further study.

The Batesford Quarry as it is generally called, is probably better known for the fossil sharks teeth of middle Miocene age which are found on the quarry floor.

ANCIENT PRIMATE WAS A SLOW MOVER

Adapted from an article in "New Scientist" 17th November, 1983 Page 493.

The recent discovery of limb bones of another early Miocene Proconsul africanus individual from Rusinga Island in Kenya, together with the unearthing of more skull fragments of an earlier discovered individual, which enabled the piecing together of a near complete skull, have caused scientists to modify their ideas on its place in the evolution of the hominoids.

Alan Walker and his colleagues from Johns Hopkins University have calculated that Proconsul africanus had a body weight of about 11 kg (close to that of an adult male colobus monkey) but with a brain volume of about 167.3 cm^3, relatively larger for its body size than that of any living monkey.

Cont...

ANCIENT PRIMATE WAS A SLOW MOVER(Cont.)

The new limb material suggests that although the animal was a strongly built and probably heavily muscled creature it moved easily and could grasp and climb tree branches well, using all four legs. However, according to Michael Rose and John Fleagle in "New Interpretations of Ape and Human Ancestry" it was not specialised for swinging or leaping about quickly in trees nor for knuckle walking, like modern chimpanzees and gorillas.

Previously it had been thought that Proconsul africanus was a lightly built active runner and arm-swinger more like a monkey than an ape in anatomy and behaviour and therefore probably off the hominoid line of evolution.

With the new discoveries it is now considered to have hominoid rather than cercopithecoid (monkey) affinities, however its place in hominoid evolution is still uncertain, one possibility being that it and allied species were the last common ancestors in Africa of all large hominoids, the great apes and humans.

Reference: New Interpretations of Ape and Human Ancestry,
ed: Ciochon and Corrucini, Plenum Press 1983.

TOOTH FOSSIL FILLS A GAP IN THE PAST

When the curator of the Geraldton Branch Museum, Mr. Greg Wallace, turned over a "stone" in a railway cutting near Bringo, east of Geraldton, he filled a small gap in Australia's distant past.

The stone turned out to be the tooth of an ichthyosaur, one of a group of dolphin-like animals that died out about 70 million years ago.

It had weathered out of the Cololura sandstone deposit which formed under the sea 180 million years ago.

The tooth, which belonged to an animal about five metres long, is the earliest known remnant from an ichthyosaur.

The palaeontologist at the W.A. Museum in Perth, Dr. Ken McNamara, has prepared the tooth for exhibition beside the head of a much smaller ichthyosaur.

from the "West Australian" 10th October,1983.

BIVALVES

by G.W. Kendrick and L.C. Schekkerman

General Features

Bivalves (known also as pelecypods or lamellibranchs, as well as the informal cockles, clams, etc.) are one of the larger groups (Classes) of the phylum Mollusca. From their first recorded appearance in the Early Cambrian, bivalves have evolved into a major element of marine and freshwater faunas and have become important in the fossil record. During the Palaeozoic, bivalves were usually outnumbered by brachiopods, but the decline of the latter at the end of the Permian was followed by a growth in numbers and variety of bivalves, which continues to the present day. In an evolutionary sense, the bivalves are a conservative group, the genera of which may be very long-ranging; many living genera have lengthy stratigraphic ranges, but there are groups that have evolved quite recently. The oldest known bivalve, *Pojetaia runnegari*, occurs in Lower Cambrian deposits of South Australia.

Bivalves form an external shell of two valves, one located on the left side of the body, the other on the right; the valves may be equal (i.e. bilaterally symmetrical) or unequal. They are connected on the dorsal margin (or "top") by an elastic, spring-like ligament, which is usually associated with a system of interlocking hinge teeth and sockets. Hinge and ligament are of diverse form and the former may be reduced or absent in some groups; both are used extensively in classification.

The bivalve animal lacks a head; essential processes such as respiration, feeding, excretion and reproduction involve the circulation of water by means of gills (or ctenidia)through the pallial cavity via siphonal extensions of the mantle margin. The mantle is a distinctive molluscan organ, which encloses the entire body and secretes the shell. Gills and siphons are of various forms and are useful in classification. Fertilization is usually external and most groups have a pelagic larval stage. In some groups, the sexes are separate and constant but many are hermaphroditic in various ways.

Several features of bivalve anatomy are indicated by characters of the shell; the strong adductor muscles (one or two), which hold the valves together, attach to the valves at adductor scars; the pallial line marks the attachment edge of the mantle to the

Cont...

BIVALVES (Cont.)

interior of each valve and may in some groups show a pallial sinus; sometimes a gape between the two valves when fully closed indicates an opening for a byssus, or fibrous extension of the foot, by which the animal attaches to a firm object.

External sculpture of the shell may include radial and concentric elements in various combinations, as well as spines, knobs, scales, etc; some groups may be more or less smooth. The outer-most layer of the shell, the periostracum, is a protective layer of variable thickness, but is not usually preserved in fossils. Shell micro-structure can be of various kinds (e.g., nacreous, crossed-lamellar, prismatic, foliated) and is useful in classification. Most bivalve shells are composed in life of the unstable mineral aragonite; a few, such as the scallops, thorny oysters and true oysters etc., are composed mainly of stable calcite.

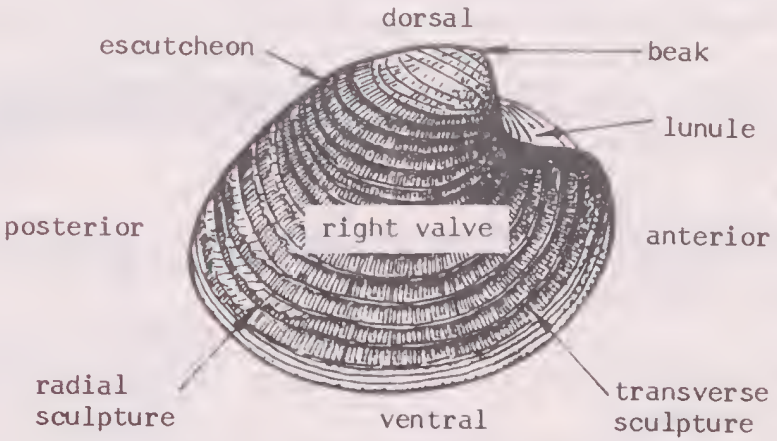
Bivalve habitats are always aquatic and mostly marine. Many (e.g., *Tellina, Bassina*) are active burrowers within sands or silts, using a muscular foot to drag the animal forward. Some nestle within rubble; others bore into rock (e.g. *Pholas*), coral (*Lithophaga*) or wood (*Teredo*). Many (*Modiolus, Barbatia, Tridacna*) employ a byssus, or fibrous extension of the foot, to attach to firm objects such as rocks, plants or sand grains. Groups which cement one valve to a firm substrate include *Chama, Spondylus* and the oysters. Active swimmers include some scallops (*Pecten*) and file shells (*Lima*). Some minute forms (Cyamiidae) are commensal parasites of other animals; *Vulsella* inhabits the interiors of sponges. Clavagellids such as *Brechites*, begin life as ordinary bivalves, but abandon normal growth to form an elaborate, tubular "watering-pot" shell, buried in the substrate.

Classification

Bivalve classification has taxed the brains of systematists for generations; many approaches have been tried and accorded varying degrees of success. Single-system methods, concentrating on one character (such as the siphons, gills, the foot, adductor muscles, hinge, shell structure, mode of life etc.) on combinations of these, have all been found inadequate, in view of evidence for considerable parallel evolution in what are actually unrelated groups.

Modern classification has attempted a synthesis of all available biological information with the extensive though incomplete fossil record into a system that attempts to recognise phylogenetic or

evolutionary relationships. The results, progress notwithstanding, contain much that is conjectural or controversial and a great deal yet remains to be achieved. The classification followed here is based on that of Newell (1969) in the Treatise on Invertebrate Paleontology vol. N(1), to which those seeking more information are referred.



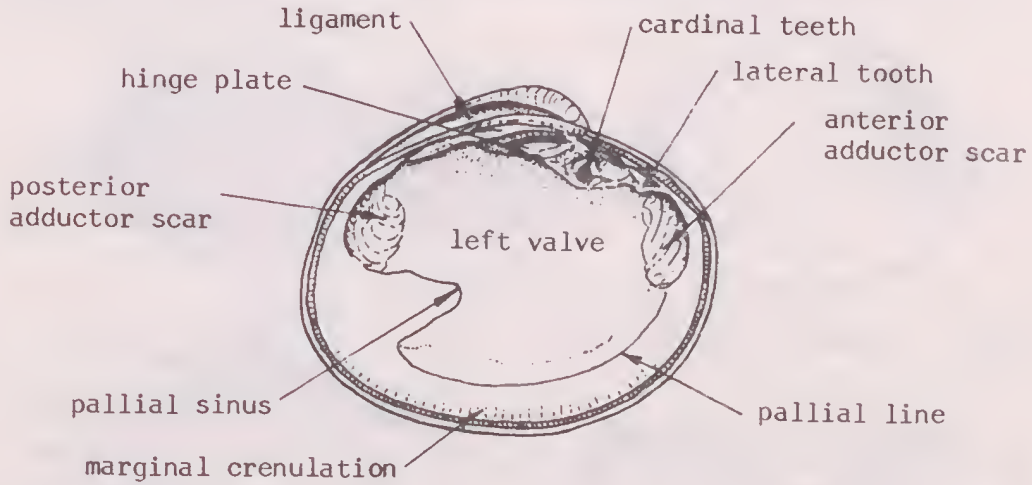


Figure 1.

Proxichione subtilicostata Darragh (family Veneridae) from Muddy Creek Formation (Balcombian, Middle Miocene) of Hamilton, Victoria, showing principal shell characters. Natural size.

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BIVALVES (Cont.)

In Newell's classification, the Bivalvia are arranged into six Subclasses, 13 Orders and 184 families, plus a few groups not assigned to families. In the present version, brief descriptions are given of the Subclasses and Orders; figured are 69 representative genera from 52 more or less common families, nearly all of which occur in Australia.

The Palaeozoic *Conocardium* and related forms are now considered not to be bivalves and are located in a separate Class - the Rostroconchia. The first, ancestral bivalve is considered to have most likely evolved from a pre-existing but as yet unknown rostroconch mollusc.

An illustrated synopsis of the Bivalvia

1. SUBCLASS PALAEOTAXODONTA

Shells with multi-toothed hinge, valves equal, not gaping; adductor scars about equal. One Order. Cambrian - Recent.

ORDER NUCULOIDA

Characters of the Subclass. Seven families. Cambrian - Recent.

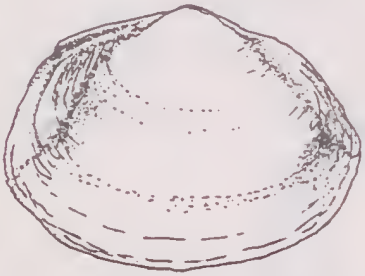

Fig.2. *Pojetaia*, x30, Cambrian.

Fig.3. *Nucula*, x1·3, Cret.- Rec. (shell nacreous)

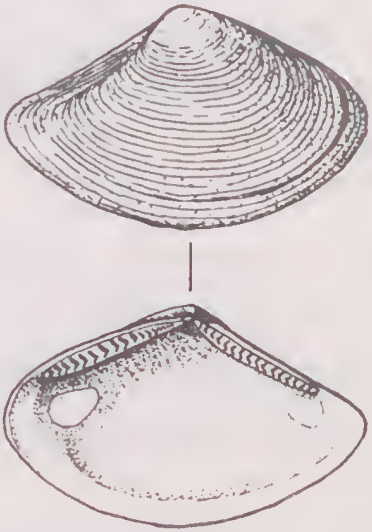

Fig.4. *Nuculana*, x4, Trias.- Rec. (shell not nacreous)

2. SUBCLASS CRYPTODONTA

Small, thin,equivalved shells of diverse form, mainly Palaeozoic. Two Orders. ?Cambrian - Recent.

ORDER SOLEMYOIDA

Shells elongate, ligament strong, hinge lacking teeth and located posteriorly; periostracum thick, extending well beyond ventral margins. One family. Devonian - Recent. Fossils rare.

Fig.5. *Solemya*, x3, Dev.- Rec.

ORDER PRAECARDIOIDA

Shells thin, of diverse form; ligament external; hinge lacking teeth; poorly known. Three families. ?Cambrian-Carboniferous.

Fig.6. *Buchiola*, x3, Sil.- Dev.

3. SUBCLASS PTERIOMORPHA

Shells of diverse form, generally robust, often byssate; ligament external. Three Orders. Ordovician - Recent.

ORDER ARCOIDA

Shells robust, valves equal or nearly so, usually radially ribbed; adductor scars about equal; ligament between raised beaks; hinge margin long, straight or arched, with numerous fine teeth. Nine families. Ordovician - Recent.

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BIVALVES (Cont.)

Fig.7. *Arca*, a. x1·3, b. x0·85, Cret.- Rec.

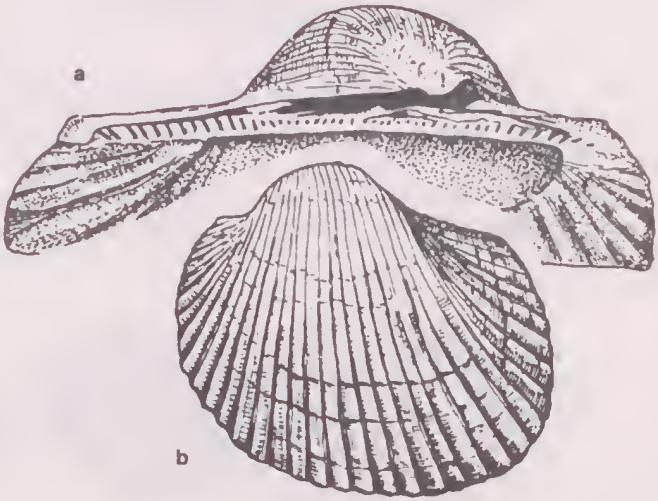

Fig.8. *Grammatodon*, x2, Jur.- Cret.

Fig.9. *Anadara*, (right). a. x2·25, b. x1.3, Cret.- Rec.

Fig.10. *Cucullaea*, x1, Jur.- Rec.

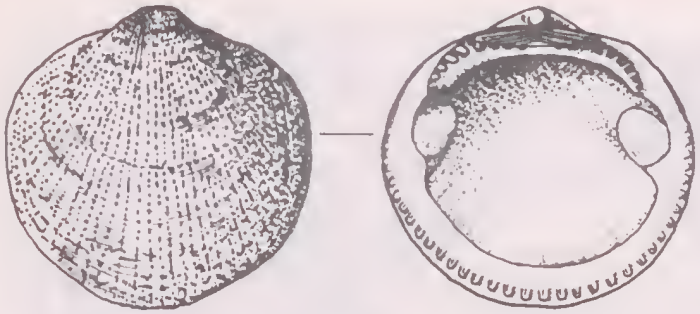

Fig.11. *Glycymeris*, x1, Cret.- Rec.

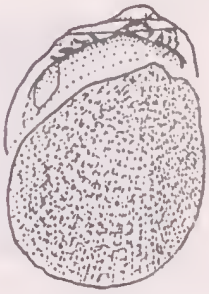

Fig.12. *Limopsis*, x2, Jur.- Rec.

ORDER MYTILOIDA

Shells equivalve, very inequilateral; ligament well developed, hinge weak, located anteriorly; nacreous; often byssate; epifaunal or burrowing. Two families. Devonian - Recent.

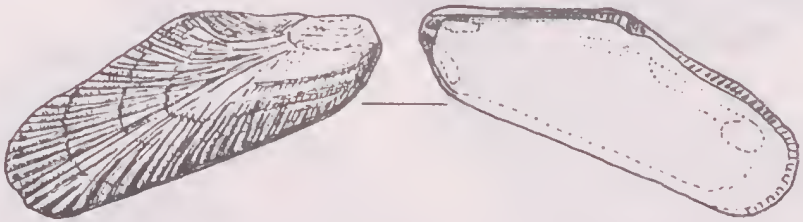

Fig.13. *Brachidontes*, x1.4, Jur.- Rec.

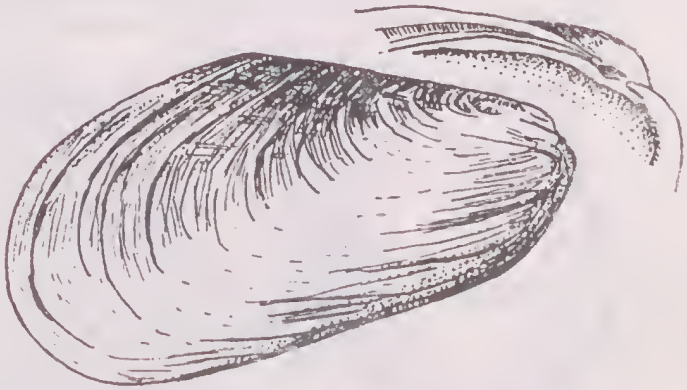

Fig.14. *Modiolus*, x1, Dev.- Rec.

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BIVALVES (Cont.)

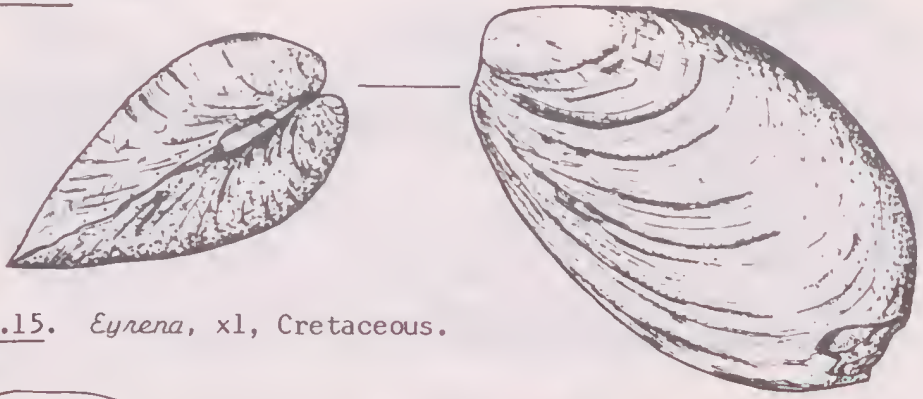


Fig.15. *Eyrena*, x1, Cretaceous.

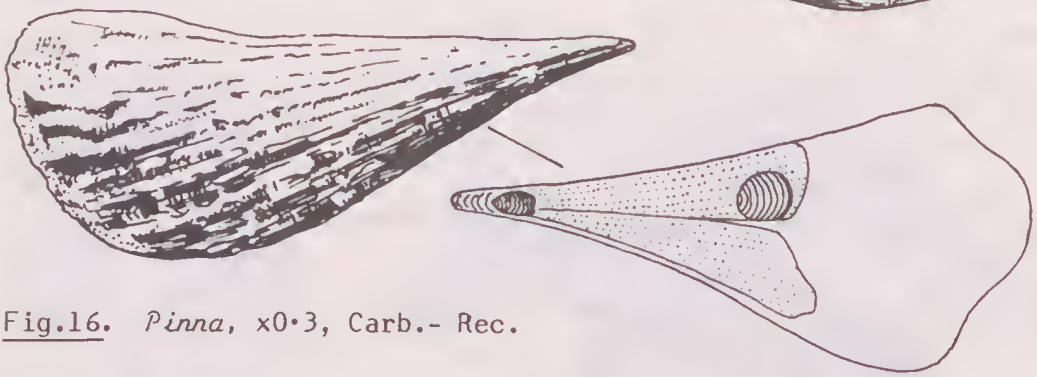


Fig.16. *Pinna*, x0·3, Carb.- Rec.

ORDER PTERIOIDA

Shells generally inequivalve and inequilateral, often with wing-like extensions of the dorsal margin; ligament strong, hinge usually weak; adductor muscles single or double; often byssate. 35 families. Ordovician - Recent.

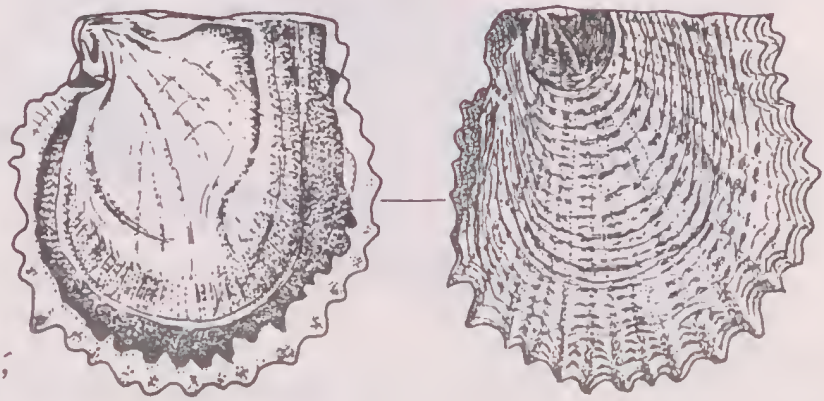


Fig.17. *Pinctada*, x0·4, Mioc.- Recent.

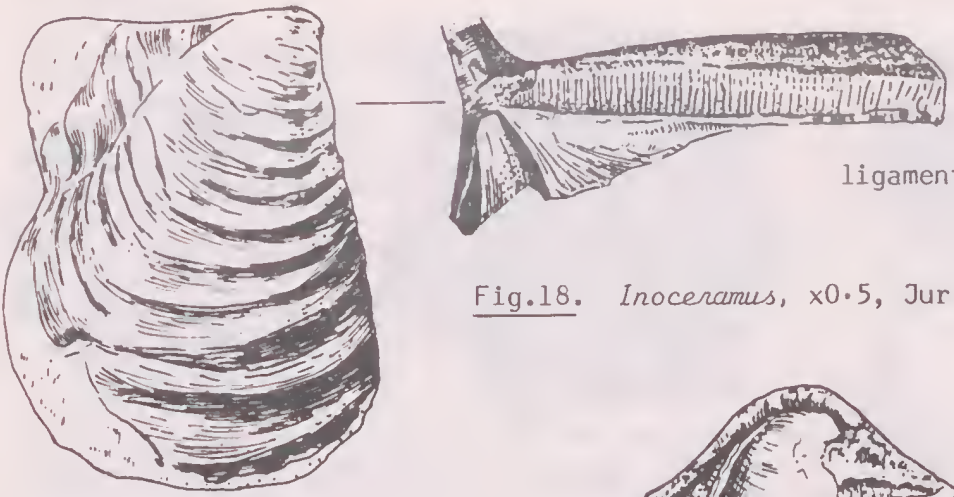


Fig.18. *Inoceramus*, x0·5, Jur.- Cret.

Fig.19. (above). *Eurydesma*, x1. Permian.

Fig.20. (left) *Isognomon*, x0·5, Trias.- Rec.

BIVALVES (Cont.)

Fig.21.
Meleagrinella, x2,
Trias.- Juras.

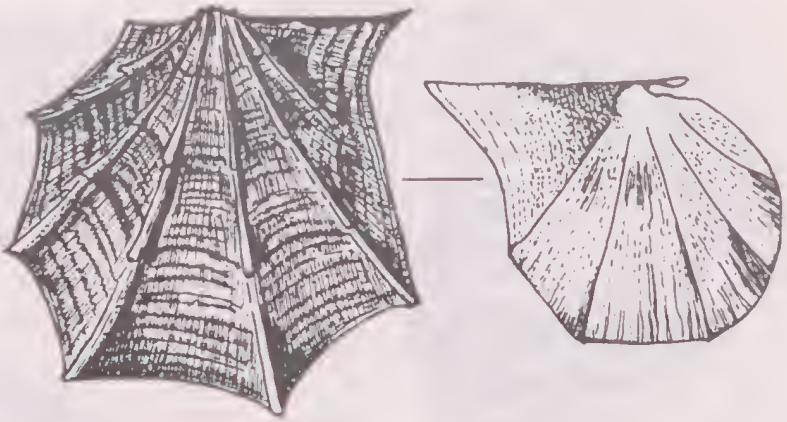


Fig.22. *Oxytoma*, a. x1, b. x0·67, Trias.- Cret.

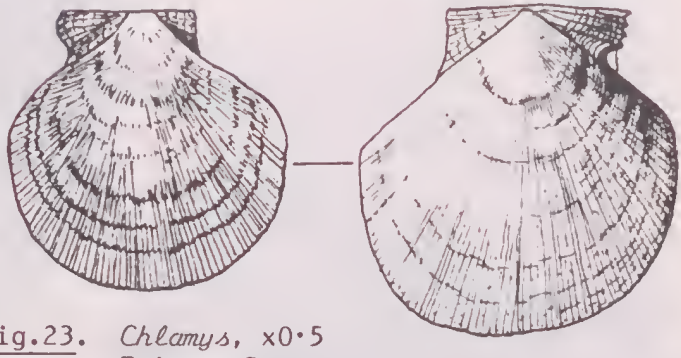


Fig.23. *Chlamys*, x0·5
Trias.- Rec.

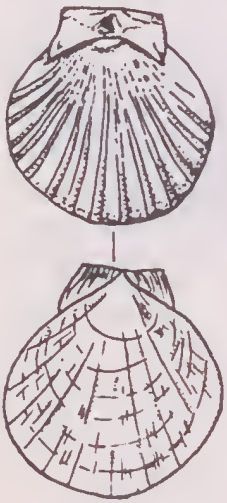


Fig.24.
Amusium, x1,
Mioc.- Rec.

Fig.26. (right).
Streblochondria, x2,
Carboniferous - Perm.

Fig.25. (above).
Aviculopecten, x2,
Permian.

TO BE CONTINUED.

BOOK REVIEWS

"WHAT FOSSIL PLANT IS THAT?" by J.G.Douglas.

This recently published 86 page paper back contains a systematic description of the fossil plants found in Victoria arranged in chronological order from the Cambrian to the Quaternary.

The introductory sections give the beginner a simple outline of the Plant Kingdom, classification of the major groups of plants and the method used in naming species.

As well as the simple easy to understand descriptions and the accompanying drawings of the main plant species to be found in rocks from the various geological periods which outcrop in Victoria, the book contains; tables for each period listing the name, affiliation and licalities of known fossil species; simple geological maps showing the main areas of sedimentation for each period and full page drawings giving a palaeobiologists impression of past landscapes such as the tidal estuary that probably existed in the vicinity of the Yea Baragwanathia locality at the end of the Silurian and the forests of Anglesea during the early middle Tertiary (40 million years ago) at the end of the coal measure deposition.

In addition to the drawings there are nine plates of photographs, an excellent glossary and species index and something we rarely find in similar books on fossils, a simple recognition guide with notes on identification difficulties and a section on localities, collection and examination.

While this book is written for the amateur interested in palaeobotany, it is anything but an amateur production. Both Dr. Douglas and the Field Naturalists Club of Victoria must be congratulated on the production of a well balanced, easy to read guide to Victorian fossil plants which will be equally useful to the beginner, the serious student and we believe, the professionals who specialise in other areas of palaeontology but from time to time may have reason to seek a quick reference to a fossil plant or location.

It is indeed refreshing to have a book on fossils that introduces the reader to some basics of sedimentary geology and an outline of geological history as it relates to the various formations and beds in which the fossil plants are found.

Cont...

"WHAT FOSSIL PLANT IS THAT?" (Cont.)

Anyone interested in this subject, not just those of us who live in Victoria should make sure they have a copy of this book in their reference library.

"What Fossil Plant is that?" A guide to the Ancient Floras of Victoria. J.G. Douglas 1983.
Published by the Field Naturalists Club of Victoria,
C/o, National Herbarium, The Domain, South Yarra, Vic.,3141.
Recommended retail price $9.95 plus postage.
(Book weight unwrapped is approx. 230 grams.)

"FOSSILS OF SOUTH AUSTRALIA" by T.Sadler, N.Pledge & B.Morris.

Part 1, Sea Urchins of the Murray River Cliffs.

This new paper back has recently become available in Sth. Australia.

The introduction gives a brief résumé of the geological formations of the lower reaches of the Murray River from Lake Alexandrina in the South to Overland Corner. A short section on the general morphology, mode of life and collecting of fossil echinoids precedes the description and photographic identification of 29 of the more common species found in the Murray Cliffs.

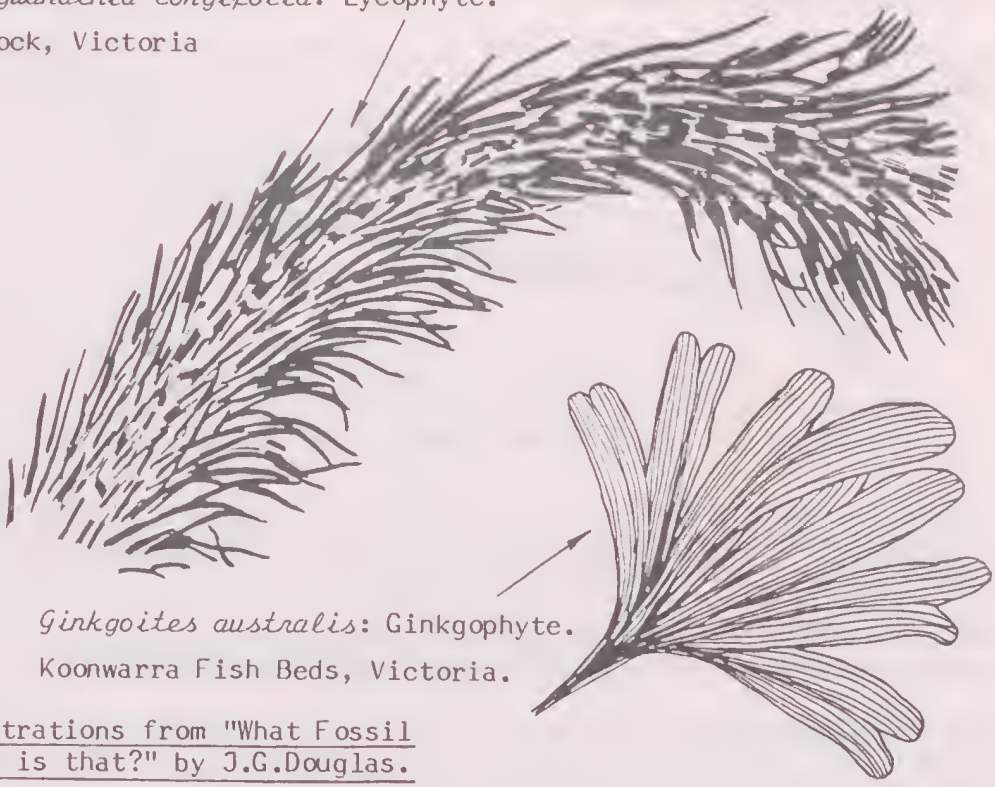
Unfortunately, the standard of photographic reproduction is in some instances rather poor leaving the reader who wants a field recognition guide rather than a written description of a species, little better off. With the irregular echinoids only aboral (dorsal) and adoral (ventral) views are illustrated and from the scale indicator these views are not always of the same specimen, although the size given in the text is of one specimen only and gives no idea of the approximate range of size of the adult species.

While we realize there is often considerable variation in profile (side view) of a species, the addition of a side view and where relevant a posterior view could be of considerable aid to identification.

Otherwise the book fills a long established amateur need for a book on echinoids of one of Australia's most prolific collecting areas.

Fossils of Southern Australia Part 1, Sea Urchins of the Murray River Cliffs by Tony Sadler, N. Pledge and Beryl Morris.
Published by Quoll Enterprises, August 1983.
Recommended retail price $6.00

Baragwanathia longifolia: Lycophyte.
Matlock, Victoria



Ginkgoites australis: Ginkgophyte.
Koonwarra Fish Beds, Victoria.

Illustrations from "What Fossil Plant is that?" by J.G.Douglas.

THE TULLY MONSTER

Recently one of our Queensland members asked if we had any detailed information on the "Tully Monster", *Tullimonstrum gregarium* from the Upper Carboniferous of Illinois, U.S.A.

This enigmatic animal of unknown affinities is found in the ironstone nodules of one of the two assemblages which form the Mazon Creek beds.

The Essex assemblage which contains the "Tully Monster" is a mixed marginal marine assemblage deposited along a delta front. It contains both terrestrial and marine elements and includes insects, millipedes, holothurians, annelids, malacostracan crustaceans, other arthropods of unknown affinities, organic-plated barnacles, jellyfish and molluscs such as cephalopods with arms and hooks attached as well as *Tullimonstrum*.

The second assemblage (Braidwood) mainly consists of plants and

Cont...

THE TULLY MONSTER (Cont.)

a. After Eugene S.Richardson Jnr., Bull.Field Mus. Nat. Hist., 37, fig.1, p.p. 4-5, 1966.

b. After Johnson R.G. & Richardson E.S.,1969.

non-marine arthropods and bivalves and is typical of a standard coal-swamp assemblage. Most nodule specimens which have entered Australia are from this latter assemblage.

Specimens of *Tullimonstrum*, named after their discoverer are unique to the Essex fauna and have no living relatives.

The animal was a soft-bodied, bilaterally symmetrical animal some 80 mm long. Its head tapers to an elongated proboscis with a pair of pincer-like jaws at the end, their inner face armed with minute stylets. Where the head grades into the trunk a pair of transverse bars project laterally from the body, each terminating in a hollow globular bar-organ; these have been variously interpreted as eyes or stabilisers. The trunk is segmented, often showing a median impression, probably the gut. At the rear a spatulate tail is marked with paired fins.

Tullimonstrum was probably a pelagic carnivore, catching its prey with the proboscis. Since the transverse bar and the proboscis are unique it is hard to assign it to any known higher taxon, and it is probably a member of an entirely extinct phylum.

It was first described by Johnson & Richardson (1969)

References

Clarkson E.N.K., 1979. "Invertebrate Palaeontology and Evolution" Chapter 12, Exceptional Faunas. George Allen & Unwin Ltd., Publishers.

References (Cont.)

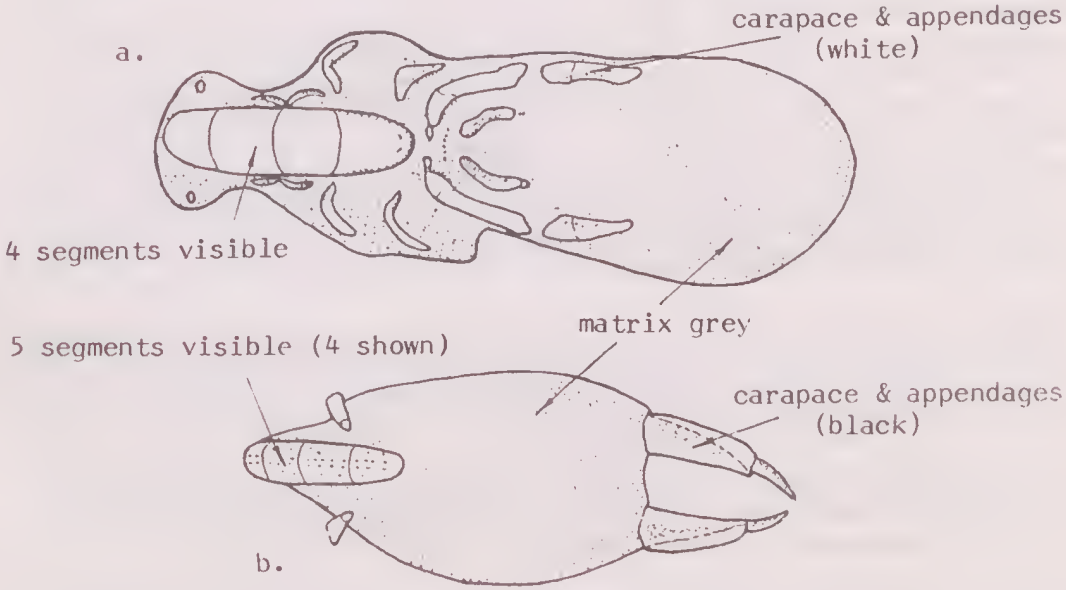
Johnson, R.G. & Richardson E.S., 1969. Pennsylvanian Invertebrates of the Mazon Creek area, Illinois, the morphology and affinities of *Tullimonstrum*. Fieldiana. Geol. 12, 119- 49 (Mazon Creek Fauna).

Paul, C.R.C., 1980. "The Natural History of Fossils" Weidenfeld & Nicolson, Publishers.

QUESTION TIME

Eric and Lilo Nowak from Lakemba, N.S.W., have written to say they have recently acquired some fossil crustaceans from Darwin (? Gunn Point) and the Mackay area of Queensland, but have little information on the specimens.

If anyone has technical details of the fauna from these two localities or can give us references to any papers on the subject we would be very grateful; particularly as similar specimens to the ones illustrated below have been available to collectors for many years usually without accompanying details.



a. Mackay specimen x0·56. b. Darwin specimen x0·56.

Cont...

QUESTION TIME (Cont.)

The Nowak's have also asked if we can publish (in a future Bulletin) a complete list of Australian geological stages from the Pre-Cambrian to Recent, as they believe the North American and European stages given in most books are not applicable to Australia.

While this information can be compiled from various sources, we understand there are differing opinions as to whether Australian stages should be quoted when a direct relationship exists between Australian and North American/European fossil faunas and floras, indeed whether stages as such are of value to palaeontologists when information on zonal fossils will give a far more accurate correlation between this continent and the rest of the world.

Perhaps some of our professional friends who read this Bulletin would like to give us their views and put us amateurs on the right path or at least keep us up with current thinking onthis subject.

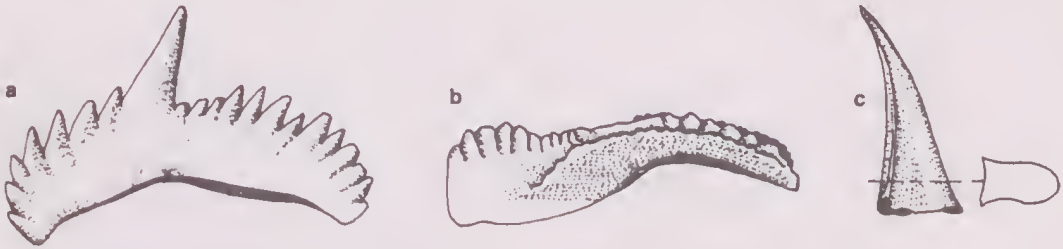
CONODONTS UNCOVERED

Conodonts are among the top ten fossils used in the science of biostratigraphy. They are plentiful, evolved quickly, and their value for accurate dating of rocks from the Cambrian to the Triassic is unquestioned. What has been questioned is what type of animal do they belong to. Conodonts, tiny phosphatic tooth-like structures which occur in marine rocks are considered to be the fossil remains of some unknown soft-bodied creature and consequently until now have been placed in the hold-all biosystematic classification of Problematica. However, the problem could well be solved.

A paper in Lethaia tells of the discovery of a worm-shaped creature with conodonts in the "right" place where the mouth would be. The find was made in some samples collected from the Granton sandstones (near Edinburgh, Scotland) in 1920's.

The specimen is small, 40.5 mm long and not too well preserved. The features which have been preserved, suggest some slight affinity with the Chordates or Chaetognatha.

While the problem of the conodonts seems to be solved, biologists are now faced with the even bigger problem of fitting this new creature into the evolutionary tree.



Typical conodont elements.

a. *Ozarkodina*, x37, a compound blade - lateral view.
b. *Polygnathus*, x37, a platform element - inner lateral view.
c. *Hertzina*, x53, simple cone - lateral view & cross section.

The Lethaia paper concludes by erecting a new phylum Conodonta in which conodonts are placed, however further fossil evidence is necessary before the final solution to the puzzle is apparent.

References: S.J. Gould, Natures Great Era of Experiments. NATURAL HISTORY 92(7): 12-21, 1983.

D.E.G. Briggs, E.N.K. Clarkson, R.J.Aldridge, The Conodont Animal. LETHAIA Vol.16: 1-4, 1983.

Article submitted by Norman Morrison, A.C.T.

OVERSEAS MEMBERS WISHING TO EXCHANGE

Ross Berglund, 11689 N.E. Sunset Loop, Bainbridge Island, Washington State, 98110, U.S.A., is interested in corresponding with anyone engaged in preparing the systematic descriptions of new and previously undescribed fossil invertebrates,particularly crabs.

Ross states that his prime interest is the Decapoda (crabs , shrimps, lobsters, crayfish etc.) of which he has over sixty different species in his collection, mainly from Washington, Oregon, Idaho and Montana. He is naturally interested in trading decapods but would also be interested in trading for trilobites, ammonites, nautiloids and brachiopods as these are not found in the North West as fossils.

Richard Smith, Laekenveld 6, 1810 Wemmel, Belgium, who has just joined the Association is keen to obtain good quality teeth from Australia in exchange for specimens of Eocene sharks teeth from Morocco.

Cont...

OVERSEAS MEMBERS WISHING TO EXCHANGE (Cont.)

teeth from Morocco.

Editor's Note: The Editor, on behalf of the Association, accepts no responsibility for the standard or authenticity of any material exchanged between members. It is suggested that members write and make contact before sending material.

SUPPLEMENTARY MEMBERSHIP LIST

For members 1st January, 1983 to 8th May,1983, see supplement to Bulletin No.10.

For members 9th May 1983 to 25th September, 1983 see Bulletin No. 11.

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